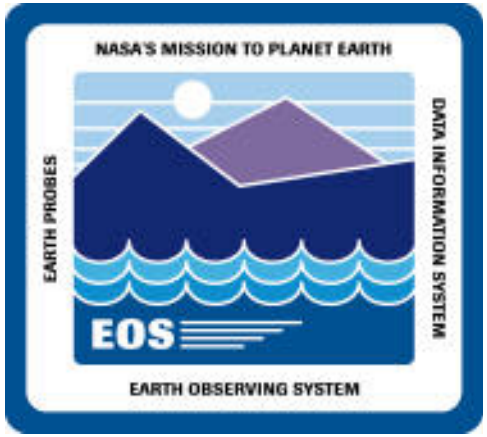

Transition To B

Howard Ausden

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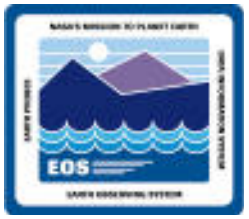
24 April 1996

Introduction

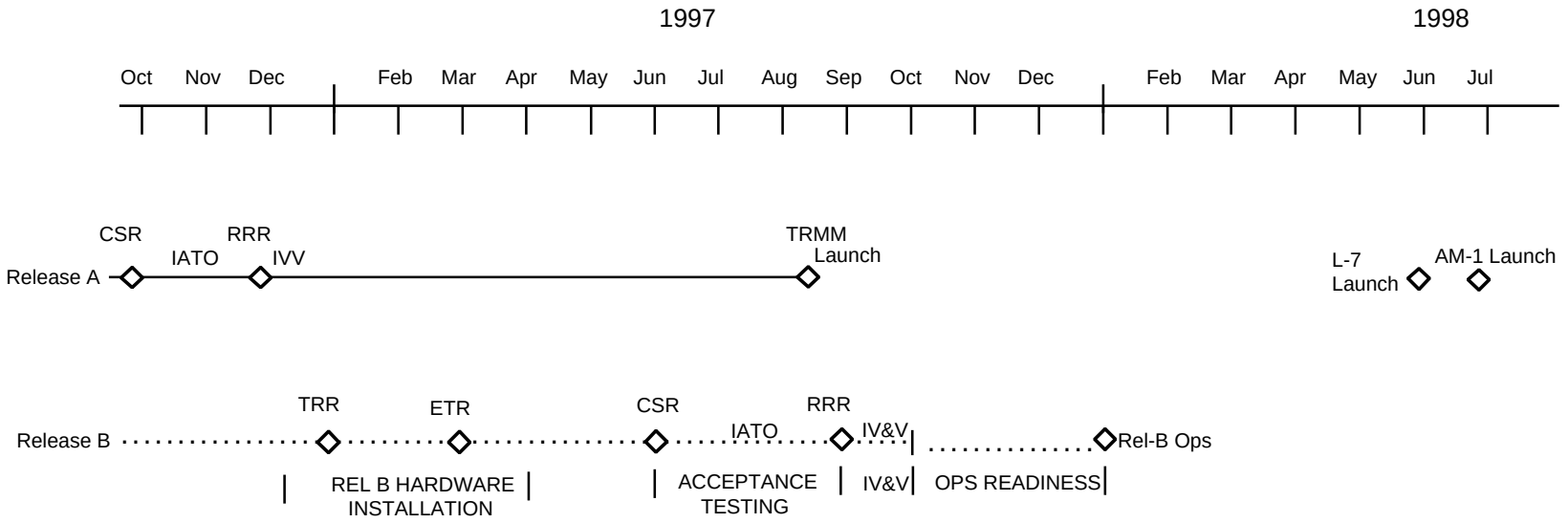


Transition To Release B: **The process of installing, testing, and making operational the Release B custom software, COTS, and hardware. This includes transition to Release B at sites that have Release A, and installation of Release B at sites that do not have Release A.**

Agenda:

- **Transition timeframe**
- **Transition planning: schedule, objectives and approach**
- **Technical challenges and candidate solutions**
- **Overview of generic plans for site transition**
- **M&O.1 Release (Ramsey Billups, Release Manager)**

Transition Timeframe



Transition Planning Schedule

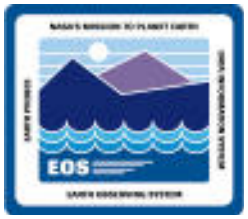
Round One: **Focus is on technical issues.**

- **Draft technical paper 420-TP-010-001 published 2/29/96.**
- **Technical paper 420-TP-010-002 version 1 Transition To Release B now available on EDHS.**
- **Version 2 June 96, to incorporate feedback from CDR.**

Round Two: **Focus on site-specific issues, with the DAACs included in the planning process .**

- **Version 3 in Feb 97, to include site-specific details of hardware-software configurations, activities, and transition plans.**
- **Version 4 by CSR-B to incorporate feedback from community on version 3.**

Transition Planning Objectives

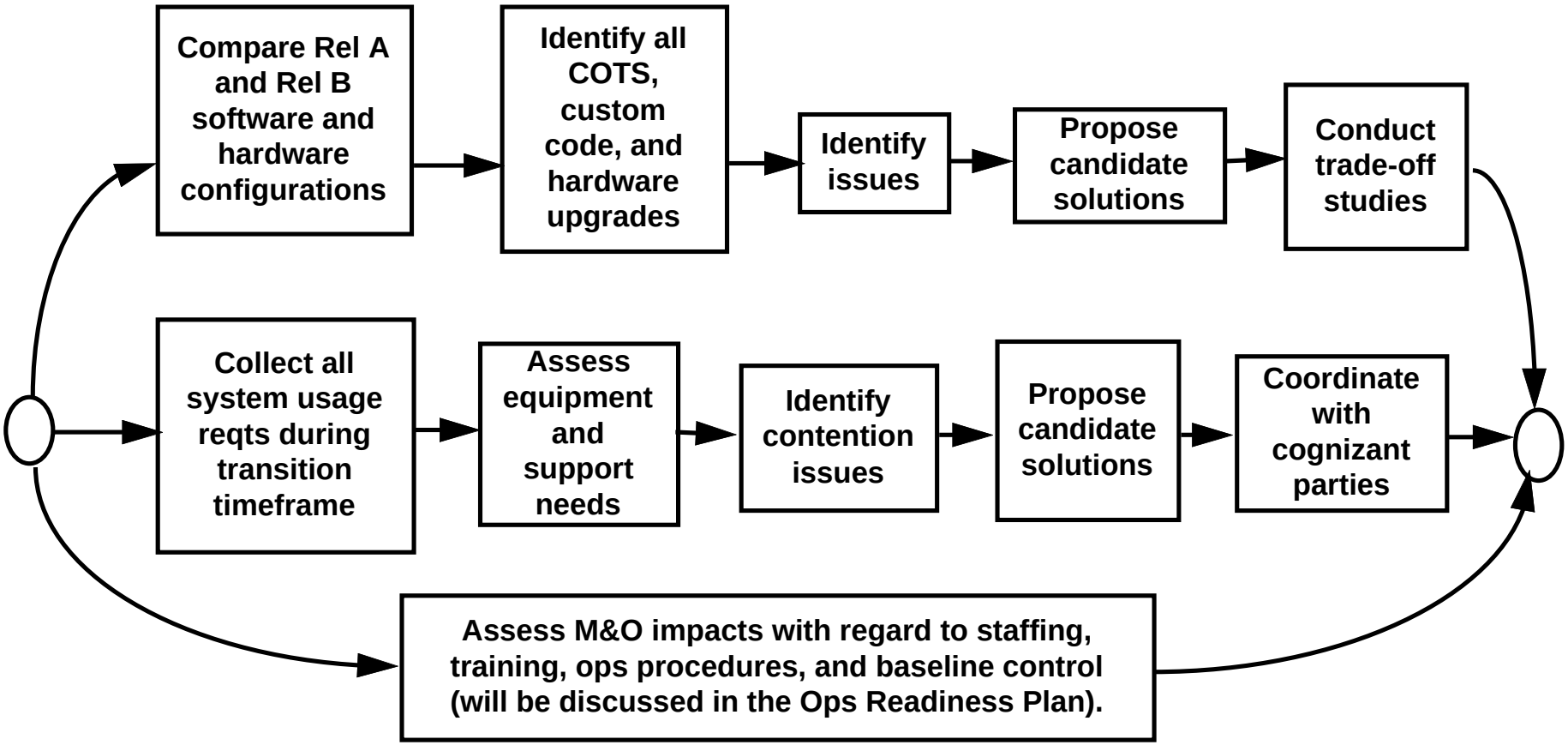


For Release A, to minimize the risk and perturbation to ongoing operational activities.

For Release B, to ensure the availability of hardware, infrastructure, and software capabilities needed to:

- **install**
- **configure**
- **test**
- **train**
- **accept**
- **IV&V**
- **and activate.**

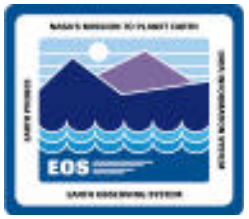
Transition Planning Approach
- Several Iterations Needed



Technical Challenges - Status

Challenges	Technical Paper Version		
	V1, Mar96	V2, Jun96	V3, Feb97
Sharing system resources between releases	X		
Piecemeal vs. whole system transition	X		
Site interoperability during transition	X		
Reverting to Release A		X	
Backward compatibility for data saved by users			X
Cutover of EOC into ECS			X
Cutover of DAO into ECS			X
Role of SMC in transition			X
DCE cell name change			X

Challenges and Solutions -
Sharing System Resources During Transition

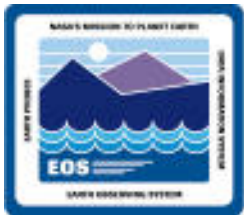


- **The challenge: To minimize the perturbation to operations, and the risk to production activities, arising from the installation and testing of release B at release A sites.**
- **A variety of configurations (see table) will be used to support the various activities at the sites. Activities will be mapped to configurations as the timeframes, equipment needs, and usage needs are identified.**
- **The last two configurations in the table require the retrofitting of part of the Release B infrastructure into Release A. Additionally, the last configuration requires Mode Management functionality to be retrofitted into Release A.**
- **Given the immediate reuse of the Release A hardware by the Release B system, Mode Management is the only way to support Release B test without requiring significant operations downtime.**

Configurations During Transition

Configuration (after Rel B hardware installed)	Applicability	Notes
Run A in A environment OR run B in B environment	EDF only	Has the highest downtime impact on A. Requires conversion between A and B environments whenever B tested.
Partition into separate strings with no network connection to each other	SSI&T, V0 Migration	There is not enough hardware to allow partitioning into two entire systems, but smaller strings are possible.
Install B infrastructure, then run A in B environment OR run B in B environment	Tests that require exclusive use of the system, eg. stress testing, failover testing.	Requires COTS upgrades to be retrofitted to Release A. Provides faster switchover to and from testing, since reconfiguration is much simpler, but requires ops downtime during tests of Rel B.
Install B infrastructure, then run A and B concurrently in the B environment	All tests that can run concurrently.	Requires mode management functionality to be retrofitted into Release A, to allow two versions of ECS software to run on the same hardware. Has the lowest downtime impact on operations.

Sustaining Engineering Release (M&O.1)



Rationale:

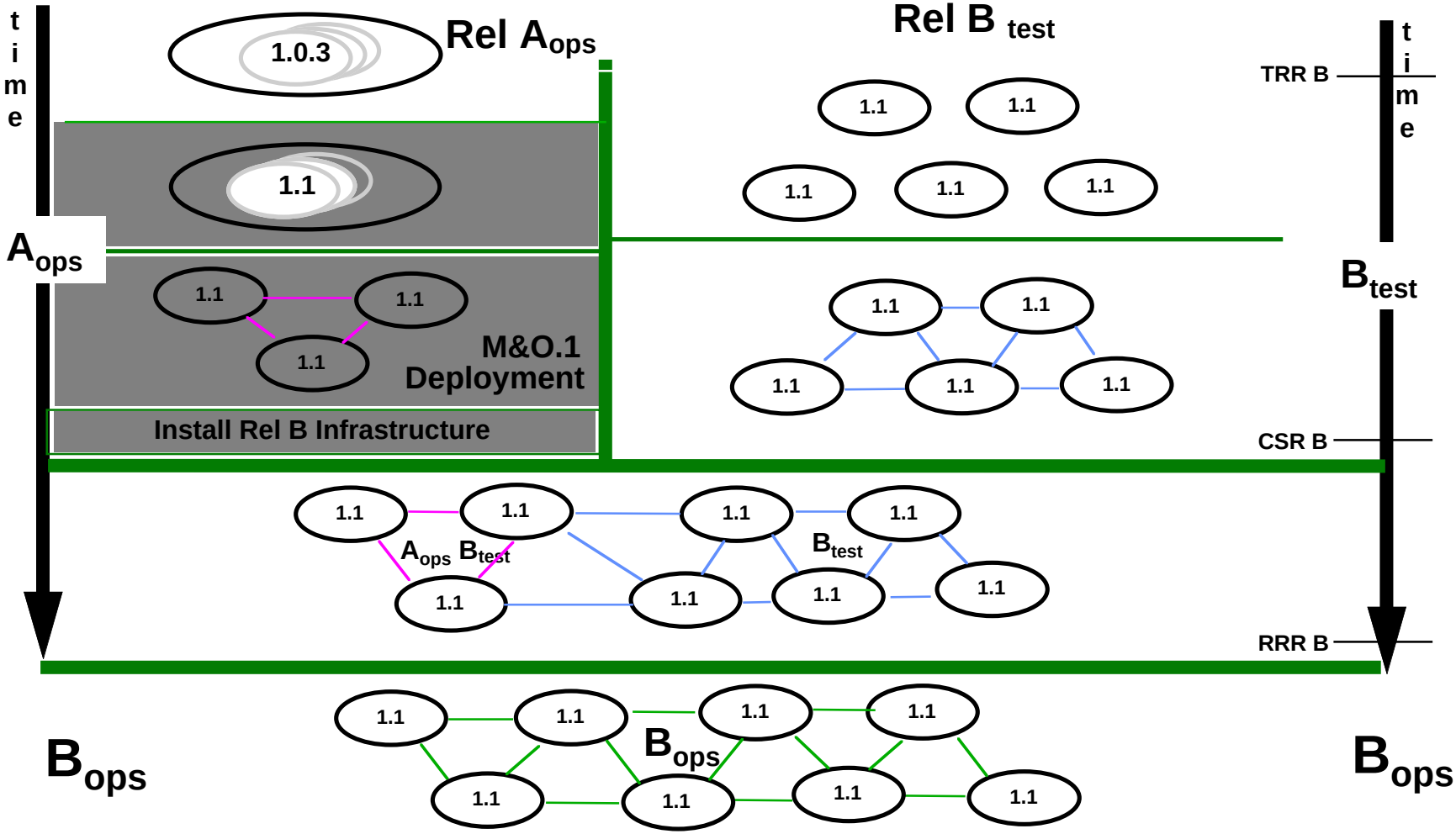
- **Retrofit Release B infrastructure into Release A, allowing for easy switch between systems (operating systems are due for upgrade anyway by Spring 97)**
- **Install parallel operations and test capability before Release B**
- **Install bug fixes as needed.**

Release contents:

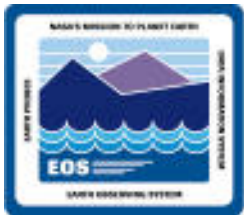
- **Release B operating system versions**
- **Release B DCE version, 1.1**
- **Sybase upgrade from version 10 to version 11**
- **DCE multi-cell topology**
- **Mode management capabilities (sufficient to support concurrent Release B test and Release A operations)**
- **Network upgrade within DAAC, to provide bandwidth needed for Release B test.**

See next presentation for more details of the M&O.1 Release.

DCE Cell/Version Transition Approach



Challenges and Solutions - Should Transition Be Piecemeal or Whole System?



Piecemeal Transition: **Release A and B components are mixed for test purposes or for operations.**

Advantages:

- **Individual B components can be tested against trusted A components.**
- **Transition is broken into a series of smaller, more easily manageable steps.**
- **Could allow sites to transition at different times.**

Disadvantages:

- **Many servers have significant interface changes (eg. introduction of the Server Request Framework) from A to B, thus losing backward compatibility with A clients.**
- **Unsatisfied interfaces need handling, eg. with stubs.**
- **Would require multiple releases of software, causing CM costs to multiply.**
- **Each piecemeal configuration used operationally would require full testing and certification, causing I&T costs to multiply.**

Piecemeal vs. Whole System Transition

Whole System Transition: **Either Release A executes or Release B executes, with no mixing of components.**

Advantages:

- **Developers not burdened with requirements for backward compatibility.**
- **Avoids cost and complexities of making multiple software releases.**
- **No Rel B test data (eg. ESDTs) in Rel A databases.**

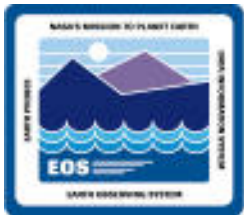
Disadvantages:

- **Transition occurs as a "big bang".**

Resolution: **While superficially attractive, the piecemeal approach is generally difficult or impossible and expensive. However:**

- **Release A V0 Client remains supported until phaseout of the V0 system.**
- **Specific piecemeal configurations may be supported. For example, Ingest-B with the A system, if needed for early interface testing.**

Challenges and Solutions -
Site Interoperability During Transition



The Issue: **In what order should the sites test Release B and transition to Release B operations?**

- **Where should testing start? Transition must be in parallel with operations at Release A sites, suggesting we start testing at sites that are new for Release B. However, operation of existing (non-ECS) systems at new Release B sites may impose similar constraints.**
- **If sites transition to operations at different times, external users (SCFs, SMC) will see inconsistent interfaces. Additional testing would be needed for each patchwork configuration.**

Resolution: **Preferred solution is that no operational use of the system will involve mixed Release A and B sites. Testing order will not be decided until details of activities at each site are understood; EDC is a candidate for first Release A site to test Release B, since ECS is not fully operational at EDC in Release A.**

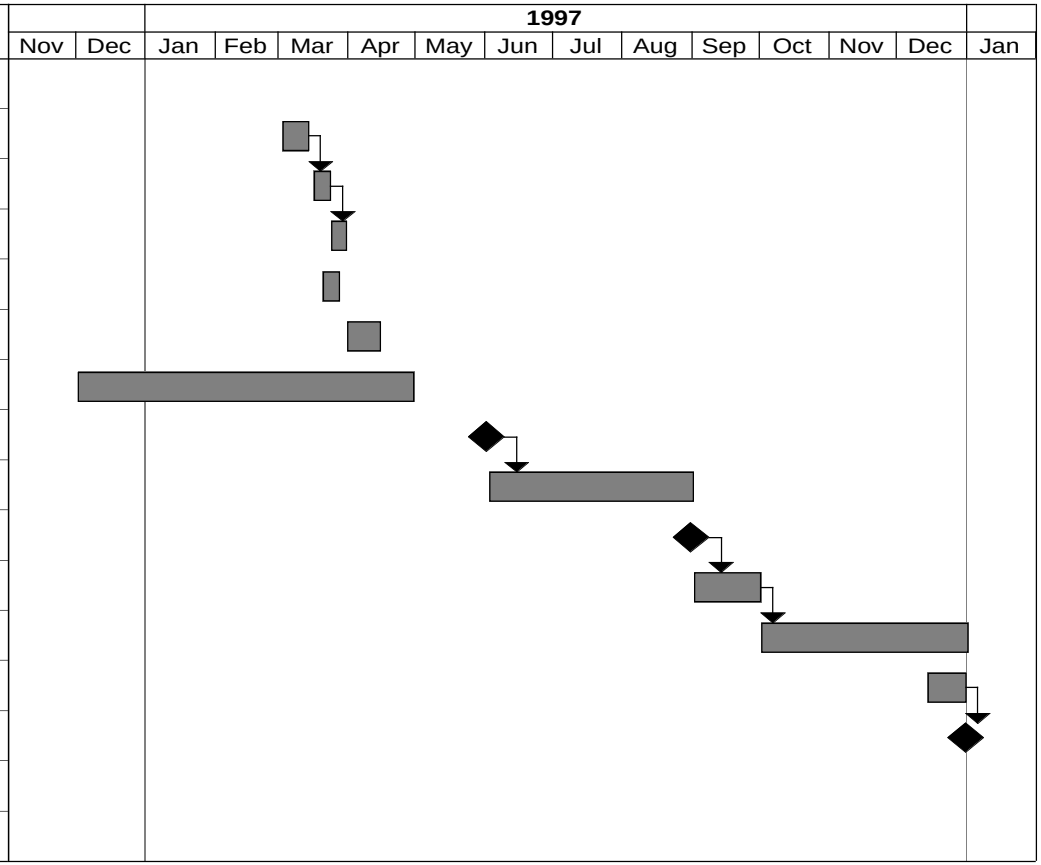
Data Migration

- **Release A data will be migrated to Release B DBMSs, and comparisons will be made to verify correctness and completeness.**

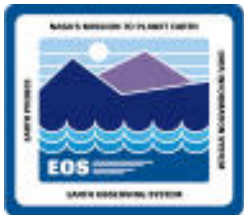
DBMS	Migration	M&O.1	Rel B
Science Data Server (SDSRV)	Migration of SDSRV and DDSRV metadata from Sybase to Illustra		X
Document Data Server (DDSRV)	Migration of documents from DDSRV Illustra instance to SDSRV Illustra instance		X
PDPS Database	Sybase V10 to V11	X	
MSS Management Database	Sybase V10 to V11	X	
Advertising	Sybase V10 to V11	X	
Gateway	Sybase V10 to V11	X	
Data Dictionary	Migration of data from release A Gateway CI		X
Ingest Database	Sybase V10 to V11	X	

Transition Plan Overview (Generic Release A Site)

ID	Task Name
1	
2	Upgrade Operating Systems
3	Upgrade to DCE 1.1
4	Create A Cell At Each Site
5	Install M&O.1 Release
6	Upgrade to Sybase V11 DBMS
7	Install Rel B Hardware/Network
8	CSR
9	Acceptance Testing (IATO)
10	RRR
11	IV&V
12	Ops Readiness Exercises
13	Migrate To New DBMS (SDSRV, DDICT)
14	Release B Operational
15	
16	



Conclusion



- **An iterative planning approach has been established. In the next iteration the sites will be included in the planning process to a wider extent.**
- **The heavyweight issues have been addressed:**
  - **Perturbation to Release A operations will be minimized because the M&O.1 Release will enable parallel ops and test.**
  - **Risk to the sites arising from transition has been reduced by breaking the work into two releases over a longer time period.**